

REMARKS

The Applicant thanks the Examiner for reminding the Applicant of its right to request rejoinder of the method claims with the product claims upon allowance of the product claims, provided that the method claims are commensurate in scope with the allowed product claims. The Applicant fully intends to request rejoinder of the method claims (now new claims 24 and 25) upon allowance of the product claims.

The above amended paragraphs of the specification overcome some informalities noted in the specification on file. The undersigned avers that the newly entered/amended paragraphs of the specification do not contain any new subject matter.

Claims 1-10 are rejected, under 35 U.S.C. § 102(b), as being anticipated by Massey et al. '063 as evidenced by the article "ABS Quick Fact". The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Massey et al. '063 relates to thermoformable laminated structures. These laminated structures consist of one or more layers of cores (A, B, C. . .). All of the disclosed cores are cellular cores or more specifically thermoplastic foams. As seen in the Figures of Massey et al. '063, the cores are depicted as a foam layer having small voids or air bubbles. In forming the laminated structures, the different layers of laminate are deliver on rollers including the foam cores.

In contrast to Massey et al. '063, the core of the pending claims is formed from extruded tubes, of circular cross sections made of a thermoplastic. The extruded thermoplastic tubes are then joined together to form the thermoplastic honeycomb structure as depicted in the Figures. The properties (e.g., density, strength to weight ratio, pliability, etc.) of the thermoplastic honeycomb core of the pending claims are vastly different than the foam cellular core as taught by Massey et al. '063.

As best seen in Fig. 1 of Massey et al. '063, in one of the final steps of producing the laminated structure, the different layers of laminates are passed through the nip of rolls 19 and 20. The laminate is formed as the various laminae pass through the pressure rolls 19, 20.

The pressure rolls apply pressure to only a small portion of the laminate structure for only a brief period of time. This is distinctly different than the method of forming the laminate of the present claims in which the sheet material is maintained in the required shape while the sheet material cools to a temperature below the fusion temperature of the thermoplastic adhesive.

In contrast to Massey et al. '063, the presently claimed laminate is formed by placing the different layers of laminae between two different heated plates and compressing these heated plates together such that the different layers of the laminae are uniformly heated and compressed at the same time. Such features are not believed to be suggested by Massey et al. '063.

Claims 1, 2, 5 and 7 are then rejected, under 35 U.S.C. § 102(b), as being anticipated by Kaufmann et al. '500 as evidenced by RD 405061, the article "Thermoplastic Polymer Products", and Pip '530. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Kaufmann et al. '500 teaches a method for forming structural panels having a core with thermoplastic resin facings. According to this disclosed method, a core material in the form of either foam or honeycomb is sandwiched between layers of thermoplastic. As disclosed, if the core is produced with a foam, the foam material is thermoplastic in nature. However, as mentioned above, use of a foam core having vastly different properties, leads to a structural material having vastly different properties than the currently claimed invention. Additionally, if the core is produced as a honeycomb, the honeycomb material is specifically disclosed as being made of an aramid paper, aluminum or glass fiber. This is in direct contrast to the materials covered by the currently pending claims.

As pointed out above, the core of the currently claimed invention is formed from extruded tubes having circular cross sections. In addition, the tubes are made of a thermoplastic. The extruded thermoplastic tubes are then joined together to form the thermoplastic honeycomb structure as depicted in the Figs of the pending specification.

Kaufmann et al, '500 also teaches the layers of laminae passing through a belt press to be compressed and form the laminate. As the laminae pass into the press, they are compressed by the leading edges of the press to a determined thickness. The laminae then continues to pass through different heating zones of the press as the laminate is formed. This process presents problems in the laminate forming process. As the laminae are forced into the press, the top and bottom layer are squeezed onto the inner layers of laminae such. This also pushes or squeezes the top and bottom layers back out of the press as the inner layers pass into the press. This presents the problem that the laminate may have differing thicknesses of top and bottom layers.

In contrast to Kaufmann et al, '500 and Massey et al. '063, the presently claimed laminate is formed by placing the different layers of laminae between two different heated plates and compressing these heated plates together such that the different layers of the laminae are uniformly heated and compressed at the same time.

It is noted that the RD 405061, the article "Thermoplastic Polymer Products", and Pip '530 references were cited for rendering fusing temperatures of some of the materials used in the application as being anticipated. Neither of these references discloses, teaches nor suggests the thermoplastic honeycomb core as used in the current invention or the method of uniformly compressing and heating the laminae to form the laminate.

Next, claims 8-10 are rejected, under 35 U.S.C. § 102(e), as being anticipated by Okabe '079 as relied on as the English translation of WO 2001 58687. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Okabe '079 relates to a polyolefin composite laminate made up of a number of different layers. The purpose of Okabe '079 is to make a laminate that is lightweight and having high rigidity. This is accomplished by stretching certain layers of the laminate while adhering them to the laminate. When formed, the stretched layers in the laminate help the laminate be less flexible or more rigid. The Applicant was not able to find anywhere in Okabe '079 the method

of compressing the layers to form the laminate. In addition, Okabe '079, certainly does not include any teaching of uniformly compressing and heating the layers to form the laminate.

Claims 1-7 are rejected, under 35 U.S.C. § 103 (improperly noted in the Official Action as 35 U.S.C. § 102(e)) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as obvious over Okabe '079. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

As pointed out above, the Applicant believes there are significant differences between Okabe '079 and the currently claimed invention, namely, according to Okabe '079 the two outer facing layers 15 are stretched as they are adhered to the inner expanded sheet 11. The stretching of these layers facilitates a certain rigidity. Because these outer layers are stretched when they are bonded to the laminate, this reduces the amount of flexibility the laminate has in the direction the outer layer was stretched. The rigid laminate produced from the method disclosed in Okabe '079 is believed to be distinctly different from the laminate made according to the presently claimed invention. The laminate according to present invention is manufactured to be flexible.

As discussed according to the presently claimed invention, the completed laminate is made to be formed using the thermal characteristics of the laminate as a benefit. The laminate is heated to a point at which the thermoplastic adhesive adheres to the skins to the core while is flexible allowing the skins to slide along the faces of the core as the laminate is molded. This would certainly not be the case for the laminate of Okabe '079. The rigid laminate of Okabe '079 would certainly resist such a molding step.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, independent claim 16 of this application now recite the features of

[a] composite sheet material comprising: a core (34) of honeycomb cellular material having a first and a second side and an initial thickness; and a first skin of continuous sheet material on the first side and a second skin of continuous sheet material on the second side of side, with the first and the

second skins each having an initial thickness; the core (34) and the first and the second skins (32, 36) are formed of thermoplastic materials; the composite sheet material being uniformly compressed to a thickness less than a sum of an initial thicknesses of the core (34), the first skin (32) and the second skin (36) while at a temperature higher than the softening temperature of the core (34).

Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Massey et al. '063 as evidenced by the article "ABS Quick Fact", Okabe '079 as relied on as the English translation of WO 2001 58687, Kaufmann et al. '500 as evidenced by RD 405061, the article "Thermoplastic Polymer Products", and/or Pip '530 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

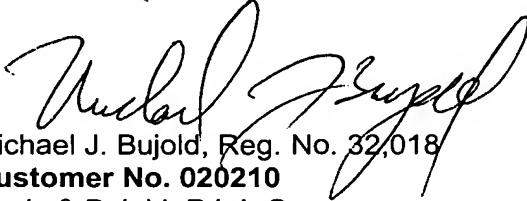
In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

10/699,077

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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